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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,675	03/16/2004	Koji Okazaki	Q79596	4735

23373 7590 10/04/2005

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EXAMINER	
QUARTERMAN, KEVIN J	
ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/800,675	OKAZAKI ET AL.	
	Examiner	Art Unit	
	Kevin Quarterman	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 March 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *0304;0604;0804a,b*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "5" has been used to designate both a heater (pg. 4, ln. 19) and a housing (pg. 4, ln. 22). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Otsuka (JP 59-060237).

4. Regarding independent claim 1, Figure 1 of Otsuka shows a glow plug for an internal combustion engine comprising a cylindrical plug case (4) having a rearward-

facing sealing face formed on an inner surface thereof; a plug body held in the plug case, the plug body including a cylindrical housing (5) having a sealing portion engaged onto the sealing face of the plug case to form an airtight seal between the plug case and the housing; a sheath (2) having a rear end portion airtightly fixed in a front end portion of the housing; a heater (1) disposed in the sheath and generating heat upon energization thereof; and a center electrode (6) disposed in the housing and having a rear end portion thereof projecting from the housing, the center electrode being electrically connected with the heater and mechanically connected with at least one of the housing, the sheath and the heater so as to become axially displaced in response to variations in engine combustion pressure; and a combustion pressure sensor (14) arranged between a rear end portion of the plug case and the rear end portion of the center electrode and having a pressure-sensitive element.

5. Regarding claim 2, Figure 1 of Otsuka shows the plug case having an inward protrusion (15) protruding radially inwardly from the rear end portion of the plug case; the center electrode having an outward protrusion (4a) protruding radially outwardly from the rear end portion of the center electrode; and the pressure-sensitive element being placed between a front surface of the inward protrusion and a rear surface of the outward protrusion.

6. Regarding claim 3, Figure 1 of Otsuka shows the sealing face of the plug case tapering toward to a front end of the plug case; the sealing portion of the housing having a sealing face tapering toward a front end of the housing and being engaged with the

sealing face of the plug case; and the glow plug further comprising a seal member held between the sealing face of the plug case and the sealing face of the housing.

7. Regarding claim 4, Figure 1 of Otsuka shows the sealing portion formed at a front end of the housing.

8. Regarding claim 5, Figure 1 of Otsuka shows the center electrode being mechanically connected with the housing so as to become axially displaced together with the housing; and the glow plug further comprising an insulating member (3) to provide an electrical insulation between the center electrode and the housing.

9. Regarding claim 6, Figure 1 of Otsuka shows the pressure-sensitive element being ring-shaped and having an inner diameter smaller than that of the plug case.

10. Regarding independent claim 7, Figure 1 of Otsuka shows a glow plug for an internal combustion engine comprising an outer plug housing (5) having a first sealing face formed on an inner surface thereof; an inner plug housing (4) held in the outer plug housing and having a second sealing face engaged with the first sealing face to form an airtight seal between the inner and outer housings; a center electrode (6) disposed in the inner plug housing and having a rear end portion projecting from a rear end of the inner plug housing and a radially outward protrusion (4a) formed on an outer surface of the rear end portion, the center electrode being under compressive stress to press the protrusion against the rear end of the housing; and insulating member (12) interposed between the rear end of the housing and the protrusion of the center electrode to keep the housing and the center electrode insulated from each other; a sheath (2) having a rear end portion airtightly fixed in the inner plug housing and a front end portion to be

located in a combustion chamber of the engine so as to receive combustion pressure; a heater (1) disposed in the sheath and electrically connected with the center electrode; and a combustion pressure sensor (14) arranged between a rear end portion of the outer plug housing and the rear end portion of the center electrode and having a pressure-sensitive element.

11. Regarding claim 8, Figure 1 of Otsuka shows the outer plug housing having an inward protrusion (15) protruding radially inwardly from the rear end portion of the outer plug housing; the center electrode having a second radially outward protrusion (4a) formed on the rear end portion of the center electrode; and the pressure-sensitive element being placed between a front surface of the inward protrusion and a rear surface of the second outward protrusion.

12. Regarding claim 9, Figure 1 of Otsuka shows the first mentioned outward protrusion located in a front side of the second outward protrusion.

13. Regarding claim 10, Figure 1 of Otsuka shows the combustion pressure sensor further including an output electrode (13) having a portion projecting radially outwardly from the outer plug housing, and the glow plug further comprising a lead (19) having a front portion connected to the projection portion of the output electrode and extending axially rearwardly; and a protective cover (20) covering therein the rear end portion of the outer plug housing, the projecting portion of the output electrode and the front portion of the lead and having an open rear end through which the lead extends externally of the protective cover.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Quarterman whose telephone number is (571) 272-2461. The examiner can normally be reached on M-TH (7-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin Quarterman
Examiner
Art Unit 2879

kq
2 October 2005

Joseph Williams
Primary Examiner
Art Unit 2879